

# Thin-Film RF/Microwave Inductor Technology

## Accu-L® Series

### L0603 AND L0805 SMD High-Q RF Inductor – Accu-L®



10 nH Inductor (Top View)

#### ACCU-L® TECHNOLOGY

The Accu-L® SMD Inductor is based on thin-film multilayer technology. This technology provides a level of control on the electrical and physical characteristics of the component which gives consistent characteristics within a lot and lot-to-lot.

The original design provides small size, excellent high-frequency performance and rugged construction for reliable automatic assembly.

The Accu-L® inductor is particularly suited for the telecommunications industry where there is a continuing trend towards miniaturization and increasing frequencies. The Accu-L® inductor meets both the performance and tolerance requirements of present cellular frequencies 450MHz and 900MHz and of future frequencies, such as 1700MHz, 1900MHz and 2400MHz.

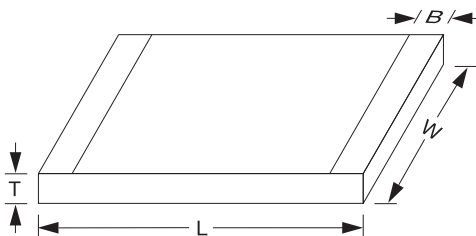
#### FEATURES

- High Q
- RF Power Capability
- High SRF
- Low DC Resistance
- Ultra-Tight Tolerance on Inductance
- Standard 0603 and 0805 Chip Size
- Low Profile
- Rugged Construction
- Taped and Reeled

#### APPLICATIONS

- Mobile Communications
- Satellite TV Receivers
- GPS
- Vehicle Locations Systems
- Filters
- Matching Networks

#### DIMENSIONS: millimeters (inches)



	0603	0805
L	1.6±0.10 (0.063±0.004)	2.11±0.10 (0.083±0.004)
W	0.81±0.10 (0.032±0.004)	1.5±0.10 (0.059±0.004)
T	0.61±0.10 (0.024±0.004)	0.91±0.13 (0.036±0.005)
B	top: 0.0 +0.3/-0.0 (0.0+0.012)	0.25±0.15 (0.010±0.006)
	bottom: 0.35±0.20 (0.014±0.008)	

Operating/Storage Temp. Range:  
-55°C to +125°C

# Thin-Film RF/Microwave Inductor Technology

## Accu-L® Series

### L0603 AND L0805 SMD High-Q RF Inductor – Accu-L®



#### HOW TO ORDER

<b>L</b> ↓	<b>0805</b> ↓	<b>4R7</b> ↓	<b>D</b> ↓	<b>E</b> ↓	<b>S</b> ↓	<b>TR</b> ↓
<b>Product</b> Sn100	<b>Size</b> 0603 0805	<b>Inductance</b> Expressed in nH (2 significant digits + number of zeros) for values <10nH, letter R denotes decimal point. Example: 22nH = 220 4.7nH = 4R7	<b>Tolerance for</b> <b>L ≤ 4.7nH,</b> B = ±0.1nH C = ±0.2nH D = ±0.5nH  <b>4.7nH &lt; L &lt; 10nH,</b> C = ±0.2nH D = ±0.5nH  <b>L ≥ 10nH,</b> G = ±2% J = ±5%	<b>Specification Code</b> E = Accu-L® 0805 technology G = Accu-L® 0603 technology	<b>Termination Code</b> W = Nickel/ solder coated (Sn 63, Pb 37)  **S= Nickel/Lead Free Solder coated (Sn100)	<b>Packaging Code</b> TR = Tape and Reel (3,000/reel)

Not RoHS Compliant

**LEAD-FREE**  
**LEAD-FREE COMPATIBLE COMPONENT**

**RoHS COMPLIANT**

For RoHS compliant products, please select correct termination style.

Engineering Kits Available see pages 118-119

#### ELECTRICAL SPECIFICATIONS TABLE FOR ACCU-L® 0603

Inductance L (nH)	450 MHz Test Frequency		900 MHz Test Frequency		1900 MHz Test Frequency		2400 MHz Test Frequency		SRF min. (GHz)	R <sub>DC</sub> max. (Ω)	I <sub>DC</sub> max. (mA) (1)
	Available Inductance Tolerance	Q Typical	L (nH)	Q Typical	L (nH)	Q Typical	L (nH)	Q Typical			
1.2	±0.1, ±0.2nH	49	1.2	70	1.2	134	1.2	170	10000	0.04	1000
1.5	±0.1, ±0.2nH	26	1.54	39	1.52	63	1.52	76	10000	0.06	1000
1.8	±0.1, ±0.2nH	20	1.74	30	1.73	50	1.72	59	10000	0.07	1000
2.2	±0.1, ±0.2nH	20	2.2	30	2.24	49	2.24	56	10000	0.08	1000
2.7	±0.1, ±0.2nH	21	2.7	30	2.75	48	2.79	54	9000	0.08	750
3.3	±0.1, ±0.2, ±0.5nH	24	3.33	35	3.39	56	3.47	64	8400	0.08	750
3.9	±0.1, ±0.2, ±0.5nH	25	3.9	57	4.06	60	4.21	69	6500	0.12	500
4.7	±0.1, ±0.2, ±0.5nH	23	4.68	32	4.92	46	5.2	49	5500	0.15	500
5.6	±0.2, ±0.5nH	26	5.65	36	5.94	54	6.23	60	5000	0.25	300
6.8	±0.2, ±0.5nH	23	6.9	33	7.3	47	8.1	39	4500	0.30	300
8.2	±0.2, ±0.5nH	23	8.4	31	10	35	12.1	31	3800	0.35	300
10.0	±2%, ±5%	28	10	39	11.8	47	14.1	41	3500	0.45	300
12.0	±2%, ±5%	28	13.2	38	14.1	30	17.2	20	3000	0.50	300
15.0	±2%, ±5%	28	16.2	38	25.9	30	49.8	15	2500	0.60	300

(1) IDC measured for 15°C rise at 25°C ambient temperature when soldered to FR-4 board. Inductance and Q measured on Agilent 4291B / 4287 using the 16196A test fixture.

#### ELECTRICAL SPECIFICATIONS TABLE FOR ACCU-L® 0805

Inductance L (nH)	450 MHz Test Frequency		900 MHz Test Frequency		1900 MHz Test Frequency		2400 MHz Test Frequency		SRF min. (GHz)	R <sub>DC</sub> max. (Ω)	I <sub>DC</sub> max. (mA)	
	Available Inductance Tolerance	Q Typical	L (nH)	Q Typical	L (nH)	Q Typical	L (nH)	Q Typical			T = 15°C (1)	T = 70°C (2)
1.2	±0.1nH, ±0.2nH, ±0.5nH	60	1.2	92	1.2	122	1.2	92	10000	0.05	1000	2000
1.5	±0.1nH, ±0.2nH, ±0.5nH	50	1.5	74	1.5	102	1.5	84	10000	0.05	1000	2000
1.8	±0.1nH, ±0.2nH, ±0.5nH	50	1.8	72	1.8	88	1.9	73	10000	0.06	1000	2000
2.2	±0.1nH, ±0.2nH, ±0.5nH	42	2.2	62	2.2	82	2.3	72	10000	0.07	1000	2000
2.7	±0.1nH, ±0.2nH, ±0.5nH	42	2.7	62	2.8	80	2.9	70	10000	0.08	1000	2000
3.3	±0.1nH, ±0.2nH, ±0.5nH	38	3.3	46	3.4	48	3.5	57	10000	0.11	750	1500
3.9	±0.1nH, ±0.2nH, ±0.5nH	27	3.9	36	4.0	38	4.1	42	10000	0.20	750	1500
4.7	±0.1nH, ±0.2nH, ±0.5nH	43	4.8	62	5.3	76	5.8	60	5500	0.10	750	1500
5.6	±0.5nH	50	5.7	68	6.3	73	7.6	62	4600	0.10	750	1500
6.8	±0.5nH	43	7.0	62	7.7	71	9.4	50	4500	0.11	750	1500
8.2	±0.5nH	43	8.5	56	10.0	55	15.2	32	3500	0.12	750	1500
10	±2%, ±5%	46	10.6	60	13.4	52	-	-	2500	0.13	750	1500
12	±2%, ±5%	40	12.9	50	17.3	40	-	-	2400	0.20	750	1500
15	±2%, ±5%	36	16.7	46	27	23	-	-	2200	0.20	750	1000
18	±2%, ±5%	30	21.9	27	-	-	-	-	1700	0.35	500	1000
22	±2%, ±5%	36	27.5	33	-	-	-	-	1400	0.40	500	1000

(1) I<sub>DC</sub> measured for 15°C rise at 25°C ambient temperature  
 (2) I<sub>DC</sub> measured for 70°C rise at 25°C ambient temperature

L, Q, SRF measured on HP 4291A, Boonton 34A and Wiltron 360 Vector Analyzer, RDC measured on Keithley 580 micro-ohmmeter.



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at [www.avx.com/disclaimer/](http://www.avx.com/disclaimer/) by reference and should be reviewed in full before placing any order.

# Thin-Film RF/Microwave Inductor Technology

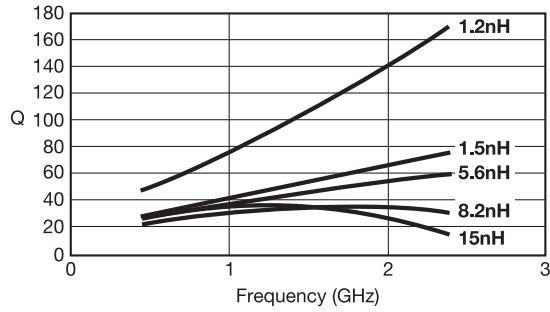
## Accu-L® Series

### L0603 AND L0805 SMD High-Q RF Inductor – Accu-L®



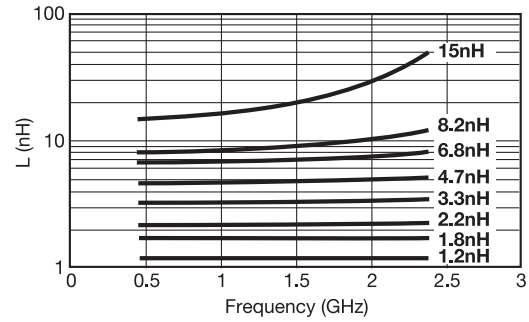
#### L0603

**Typical Q vs. Frequency  
L0603**



Measured on AGILENT 4291B/4287  
using the 16196A test fixture

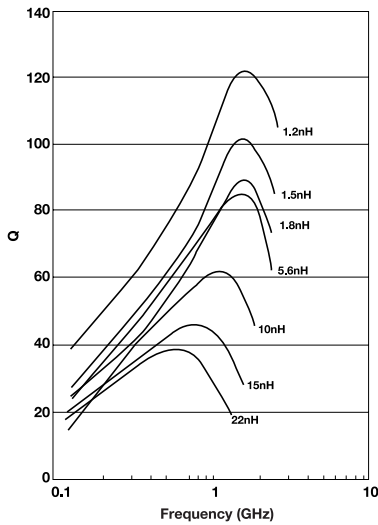
**Typical Inductance vs. Frequency  
L0603**



Measured on AGILENT 4291B/4287  
using the 16196A test fixture

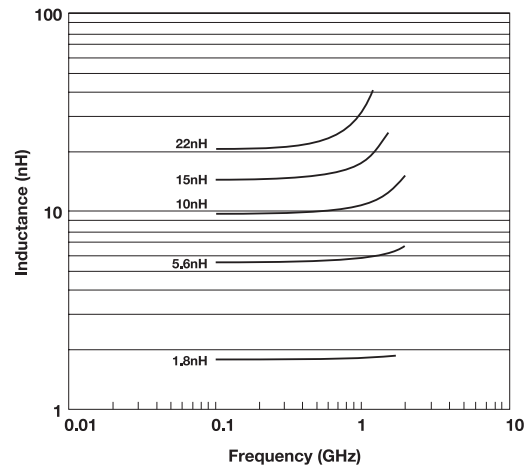
#### L0805

**Typical Q vs. Frequency  
L0805**



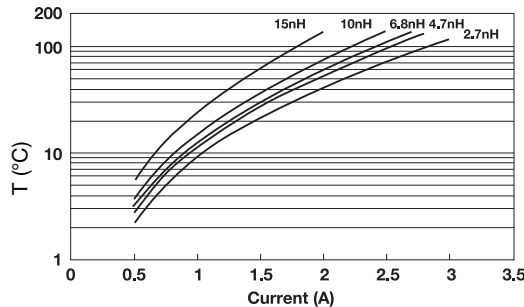
Measured on HP4291A and  
Boonton 34A Coaxial Line

**Typical Inductance vs. Frequency  
L0805**



Measured on HP4291A and  
Wiltron 360 Vector Analyzer

**Maximum Temperature Rise  
at 25°C ambient temperature (on FR-4)  
L0805**



Temperature rise will typically be no higher than shown by the graph